Remarks

The Office Action dated March 25, 2004 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-27 are pending in this application. Claims 1-27 stand rejected.

The objection to Claim 1 because of informalities is respectfully traversed.

Claim 1 has been amended to recite "a beam configured to attach to vehicle rails" as suggested by the Examiner.

For the reasons set forth above, Applicants respectfully request that the objection to Claim 1 be withdrawn.

The rejection of Claims 1-5, 7-15, 17-24, and 26-27 under 35 U.S.C. § 102(e) as being anticipated by Trappe (US 6,669,251) is respectfully traversed.

Trappe describes a bumper assembly having an energy absorber that includes a flanged frame and a body extending from the frame. The body includes a first traverse wall, a second traverse wall spaced from the first traverse wall and a plurality of tunable crush boxes extending therebetween. Trappe does not describe nor suggest crush box side walls that have a concave shape. Rather, the crush box side walls are flat as shown in Figures 5 and 9.

Claim 1 of the present application recites a bumper system having an energy absorber that includes "a body comprising a plurality of lobes extending from said flanged frame and spaced apart from each other, each said lobe comprising first and second side walls, said first and second side walls having a concave shape".

Claim 11 of the present application recites a bumper assembly that includes an energy absorber that includes "a body comprising a plurality of lobes extending from said flanged frame and spaced apart from each other, each said lobe comprising first and second side walls, said first and second side walls having a concave shape".

Claim 20 of the present application recites an energy absorber that includes "a body comprising a plurality of lobes extending from said flanged frame and spaced apart from each other, each said lobe comprising first and second side walls, said first and second side walls having a concave shape".

Trappe does not describe nor suggest a bumper system as recited in Claim 1, a bumper assembly as recited in Claim 11, nor an energy absorber as recited in Claim 20. Particularly, Trappe does not describe nor suggest an energy absorber that includes a plurality of lobes with each lobe having a first and second side wall and with the first and second side walls having a concave shape. Rather, Trappe teaches crush boxes that include flat side walls as shown in Figures 5 and 9. There is no description or suggestion of concave shaped side walls to encourage deflection of the side walls into a cavity to prevent stack-up of material that could adversely affect the energy absorbing characteristics of the energy absorber. Accordingly, Applicants submit that independent Claims 1, 11, and 20 are patentable over Trappe.

Claims 2-5 and 7-10 depend from independent Claim 1, Claims 12-15 and 17-19 depend from independent Claim 11, and 21-24 and 26-27 depend from independent Claim 20. When the recitations of dependent Claims 2-5 and 7-10, 12-15 and 17-19, and 21-24 and 26-27 are considered in combination with Claims 1, 11, and 20 respectively, Applicants respectfully submit that Claims 2-5, 7-10, 12-15, 17-19, 21-24, and 26-27 likewise are patentable over Trappe.

For the reasons set forth above, Applicants respectfully request that the Section 102(e) rejection of Claims 1-5, 7-15, 17-24, and 26-27 be withdrawn.

The rejection of Claims 6, 16, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Trappe (US 6,669,251) is respectfully traversed.

As explained above, Trappe does not describe nor suggest an energy absorber that includes a plurality of lobes with each lobe having a first and second side wall and with the first and second side walls having a concave shape. Accordingly, independent Claims 1, 11, and 20 are patentable over Trappe.

Also, Applicants submit that it would not be an obvious matter of design choice to modify the bumper system of Trappe to include teardrop shaped openings. Particularly, and as explained in paragraph [0023] of the present application, the teardrop shaped openings and the dimensions of the teardrop shaped openings provide different stiffness characteristics. Particularly, there is less stiffness in the area of the traverse walls where the teardrop shaped opening is widest and there is greater stiffness in the area of the traverse wall where the teardrop shaped opening is narrowest. The selection of the dimensions of the teardrop shaped openings provides the appropriate tuning of the energy absorber.

Claim 6 depends from independent Claim 1, Claim 16 depends from independent Claim 11, and Claim 25 depends from independent Claim 20. When the recitations of dependent Claims 6, 16, and 25 are considered in combination with Claims 1, 11, and 20 respectively, Applicants respectfully submit that Claims 6, 16, and 25 likewise are patentable over Trappe.

For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claims 6, 16, and 25 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,

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